(BSP December 2, 2002)

Materials for Polyester Concrete

Polyester Resin Binder

The resin shall be an unsaturated isophthalic polyester-styrene co-polymer, and shall conform to the following requirements:

Viscosity:	75 to 200 cps (20 rpm at 77F)	ASTM D 2196
Specific Gravity:	1.05 to 1.10 at 77F	ASTM D 1475
Elongation:	35% minimum	ASTM D 638
Tensile Strength:	2,500 psi minimum	ASTM D 638
Conditioning:	18 hours/77F/50% + 5 hours/158F	ASTM D 618
Styrene Content:	45% to 50% by weight	ASTM D2369
Silane Coupler:	1.0% minimum (by weight of polyester-styrene resin)	

The silane coupler shall be an organosilane ester, gammamethacryloxypropyltrimethoxysilane. The promoter/hardeners shall be compatible with suitable methyl ethyl ketone peroxide (MEKP) and cumene hydroperoxide (CHP) initiators. MEKP initiators shall be used when the surrounding concrete temperatures are above 60F. A blend of initiators may be used as approved by the Engineer when the surrounding concrete temperature is 50F to 60F.

Polyester resin binder will be accepted based on submittal to the Engineer of a Manufacturer's Certificate of Compliance conforming to Section 1-06.3.

High Molecular Weight Methacrylate (HMWM) Resin

In addition to the viscosity and density properties, and the promoter/initiator system, already specified in this Section, the HMWM resin for polyester concrete overlays shall conform to the following requirements:

Flash Point:	180F minimum	ASTM D 93
Tack-Free Time:	400 minutes maximum	California Test 551

Prior to adding initiator, the HMWM resin shall have a maximum volatile content of 30 percent, when tested in conformance with ASTM D 2369.

HMWM resin will be accepted based on submittal to the Engineer of a Manufacturer's Certificate of Compliance conforming to Section 1-06.3.

Aggregate

The aggregate shall be from Washington State Pit Site B-335 located near Steilacoom, Washington and shall be thoroughly washed and kiln dried.

The aggregate shall conform to Section 9-03, and one of the following combined aggregate gradings:

Combined Aggregate

Sieve Size	1/2" Max. % Passing	3/8" Max. % Passing
1/2"	100	100
3/8"	83-100	100
U.S. No. 4	65-82	62-85
U.S. No. 8	45-64	45-67
U.S. No. 16	27-48	29-50
U.S. No. 30	12-30	16-36
U.S. No. 50	6-17	5-20
U.S. No. 100	0-7	0-7
U.S. No. 200	0-3	0-3

Aggregate retained on the U.S. No. 8 sieve shall have a maximum of 25 percent crushed particles. Fine aggregate shall consist of natural sand only.

Aggregate absorption shall not exceed one percent. The moisture content of the aggregate shall not exceed one half of the aggregate absorption at the time of mixing with the polyester resin binder. The aggregate temperature shall be between 45F and 100F at the time of mixing.

Sand for Abrasive Finish

The sand for abrasive finish shall conform to Section 6-09.2, and the aggregate moisture content requirements specified above.